

REMARKS

In response to the Office Action mailed March 21, 2008, Applicant currently amends claims 1 and 12. Claims 1-19 are presented for examination.

35 U.S.C. § 103

Claims 1-19 were rejected under 35 U.S.C. § 103(a) as being unpatentable over US 4,842,038 to Fujino et al. (hereinafter "Fujino") in view of UK 2,160,456 to Cortina (hereinafter "Cortina") and further in view of DE 37 26 217 to Vaillant (hereinafter "Vaillant").

As amended, claim 1 is directed to a process of casting a light metal artefact, the process including induction heating with a unitary circumferential heating element comprising at least two circumferential induction coils controllable independently of each other or one another, with the unitary circumferential heating element employed to provide the surface of the interior of a die or mould with a desired temperature profile. Claim 12 is directed to an apparatus or installation for casting light metal artefacts including a unitary circumferential heating element including at least two circumferential induction coils controllable independently of each other or one another to heat the die or mould to an elevated temperature while providing the surface of the interior of the die or mould with a desired temperature profile. Fujino, Cortina, and Vaillant, alone and in any proper combination, fail to disclose or make obvious at least these features of claims 1-19.

Fujino discloses an injection method of a die casting machine. (See, e.g., Fujino, col. 1, lines 56-59). Fujino's injection method includes positioning a cylindrical preheater 38 at an outer position in the vicinity of injection sleeves and using the cylindrical preheater to melt the inner portion of a billet. (See, e.g., id., col. 3, lines 14-32; see also id., FIGS 1 and 2 reproduced below). After the inner portion of the billet 29 is melted, the billet 29 is carried into an injection sleeve 22 and is heated by heaters 31. (See, e.g., id., col. 3, lines 32-35). A plunger tip 24 is moved upward to inject the molten metal 33 into cavity 7 formed by movable dies 5 and 6 (See, e.g., id., col. 3, lines 37-39). As acknowledged by the Examiner, Fujino does not show the use of heat spaced from the die for heating the die. (Office Action, p. 2, ¶1). In fact, Fujino does not disclose or make obvious a unitary circumferential heating element spaced from a die or mould,

much less such a heating element comprising at least two circumferential induction coils controllable independently of each other, and much less employed to provide a surface temperature of an interior of a die or mould with a desired temperature profile, as recited in claims 1 and 12.

Referring to Cortina's Figure 3 below, Cortina discloses a mould 8 that includes an excess metal component 3 and a cast component 4. (See, e.g., Cortina, p. 1, lines 121-123). One or more half coils 7 are embedded in each half of mould 8. (See, e.g., id., p. 2, lines 5-13). Cortina discloses half coils 7 in each mould half such that connection of each half coil 7 "may form loops" that can be powered to provide heat to molten material during the casting process. (See, e.g., id., p. 2, lines 5-8).

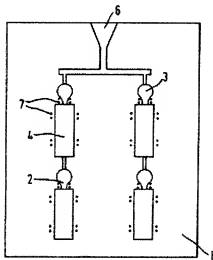


FIG. 3



The Examiner contends that Cortina "shows to heat the different portions of the casting mold during [the] casting process to obtain a casting product of better quality." (Office Action, p. 2, ¶1). However, Applicant respectfully submits that the Examiner has not supported this contention with reference to any specific portion of Cortina. Therefore, it is unclear from the

Office Action what portion of Cortina is deemed to describe the features recited in claims 1 and 12.

To the extent that the Examiner intends to rely on Cortina's half-coils 7 as providing heat for zones of his mould, Cortina discloses that "[t]he heating is performed in such a way that as the molten material cools and solidifies to form the cast body 4, the resulting contraction in volume is filled by excess metal from the critical zones 2." (Cortina, p. 2, lines 30-34). Cortina does not disclose circumferential coils controllable independently of each other or one another to heat a die or mould, much less to provide the surface of an interior of the die or mould with a desired temperature profile. Moreover, the Examiner has not cited any portion of Cortina to support the contention that Cortina's heating requires different thermal input in different regions. Thus, contrary to the Examiner's contention, it would not have been obvious for a person of ordinary skill in the art to modify Cortina's method to include controlling each circumferential coil independently, as recited in claims 1 and 12.

Applicant further submits that Cortina fails to disclose or make obvious a unitary circumferential heating element comprising at least two circumferential induction coils spaced from the die or mould, as recited in claims 1 and 12. This is not a trivial distinction. Cortina's half coils 7 are configured to form loops upon connection of two portions of Cortina's mould 8. (See, e.g., id., p. 2, lines 5-8). As compared to such separable coils, the unitary circumferential heating elements as recited in claims 1 and 12 do not require alignment and, thus, can allow for improved temperature control over the course of repeated uses.

Based on Vaillant's Fig. 1, Vaillant appears to show heating a metal die through the use of an induction heating coil laid externally around the die. However, Vaillant has not been shown to cure the deficiencies of Fujino and Cortina discussed above. For example, Vaillant's Fig. 1 appears to show a heating coil 9 that is separable as mold halves 2, 3 separate to allow access to cavity 7.

In view of the foregoing discussion, Applicants request reconsideration and withdrawal of the rejections of claims 1-19 as being unpatentable over Fujino in view of Cortina and further in view of Vaillant.

Provisional Rejection for Double Patenting

Claims 1-19 were provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 2, 4-14 and 17-20 of copending Application No. 10/596,015. The Applicant requests that this rejection be held in abeyance until the claims are otherwise in condition for allowance.

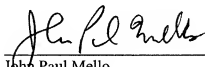
Conclusion

Any circumstance in which the Applicant has (a) addressed certain comments of the Examiner does not mean that the Applicant concedes other comments of the Examiner, (b) made arguments for the patentability of some claims does not mean that there are not other good reasons for patentability of those claims and other claims, or (c) amended or canceled a claim does not mean that the Applicant concedes any of the Examiner's positions with respect to that claim or other claims.

The fee for a three-month extension of time is being paid concurrently herewith on the Electronic Filing System (EFS) by way of deposit account authorization. Please apply any other charges or credits to deposit account 06-1050, referencing Attorney Docket 20997-003US1.

Respectfully submitted,

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